

178991

## Critique of Oxygen Analyzer

I have been using the oxygen analyzer made by Precision Scientific Company along with the Winkler titration method on each sample bottle tested for the past month when time would allow. The Winkler titration method is the one we are currently using.

From the results obtained, the analyzer is just as good a method as the Winkler method. The results obtained from both methods correspond very well.

As for the cost, the instrument should more than pay for itself in two years, and quite probably within a year and a half. This is a result of less time being required and a smaller amount of chemicals which are required.

From discussions with Dr. Pascoe, a Paper Technology instructor at Western Michigan University who has done a comparative analysis of the two methods, and Andre Caron, Regional Engineer, both have said that the instrument is a very reliable method of determining the dissolved oxygen content and, thus the B.O.D.

Also, from a report that I have obtained, from the Northeast Research Center, which is a division of the National Council for Stream Improvement, has compared this method with other methods and declares that this method compares well with the Winkler method at low solids concentrations such as our own and that actually it is more accurate than the Winkler method. They have come to this conclusion after extensive research.

# Cos' Analysis of Oxigen Analyzer

The cost of the instrument is \$35-

Approx 1 Hr + per day for titration.  
 Approx  $\frac{45 \text{ min}}{15 \text{ min.}}$  per day for analyzer.

$$= 90 \text{ hrs/yr} = \$190/\text{yr}$$

Approx 2 hrs every 2 ~~weeks~~ weeks for  
 standardizing  $\text{Na}_2\text{S}_2\text{O}_3$  solution  $= 52 \text{ hrs/yr} = \$110/\text{yr}$

5 Bottles  $\overset{32g}{\text{MnSO}_4}$  sol'n/yr. @ \$5.00 - 32g = \$25/yr.

5 Bottles  $\overset{32g}{\text{As}_2\text{O}_3}$  sol'n/yr. @ \$5.00 - 32g = \$25/yr.

3 Bottles  $\overset{32g}{\text{Thyodine}}$  indicator/yr. @ \$2.50 - 32g = \$7.50/yr.

1 gallon  $\overset{(15\%)}{\text{H}_2\text{SO}_4}$  per year @ \$.44/# = \$6.50/yr.

TOTAL  $\frac{\$364}{\text{yr.}}$

Amount saved per year is approx.

\$364

Alkaline Potassium Iodide Solution for D.O.  
520 grams of NaOH  
152 grams of KI  
20 sodium azide

Manganous Sulfate Solution for D.O.  
480 grams ( $MnSO_4 \cdot 4H_2O$ ) in 1 liter of water  
adjust for waters of hydration